

Epistatic Mutations And Unpredictable Phenotypes In *Pseudomonas Aeruginosa* - DTU Orbit (08/11/2017)

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Pseudomonas aeruginosa is an opportunistic pathogen, able to adapt to stressful environments such as the cystic fibrosis (CF) airways. Adaptation of *P. aeruginosa* to the CF environment is associated with phenotypic changes, such as switch in mucoidy, antibiotic resistance and loss of virulence factors. The phenotypic changes arise from mutations in trans-regulatory elements but are nearly impossible to predict from sequence data alone. Often, the combinatorial effects of few mutations in global regulators give rise to unexpected phenotypes. To understand the epistatic effect and how unexpected phenotypes arise from seemingly unrelated mutations, we have studied two mutations in *P. aeruginosa* transcriptional regulators, sigma factor *rpoD* and *algT*.

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